the collaborative for high performance schools

Tools for the Next Generation of California Schools

High Performance Schools 101

Menlo Park City School District

What does it mean to be

Green

Sustainable

Environmental

How can we determine if we have have met these goals?

What benchmark or standard can we measure ours goals by?

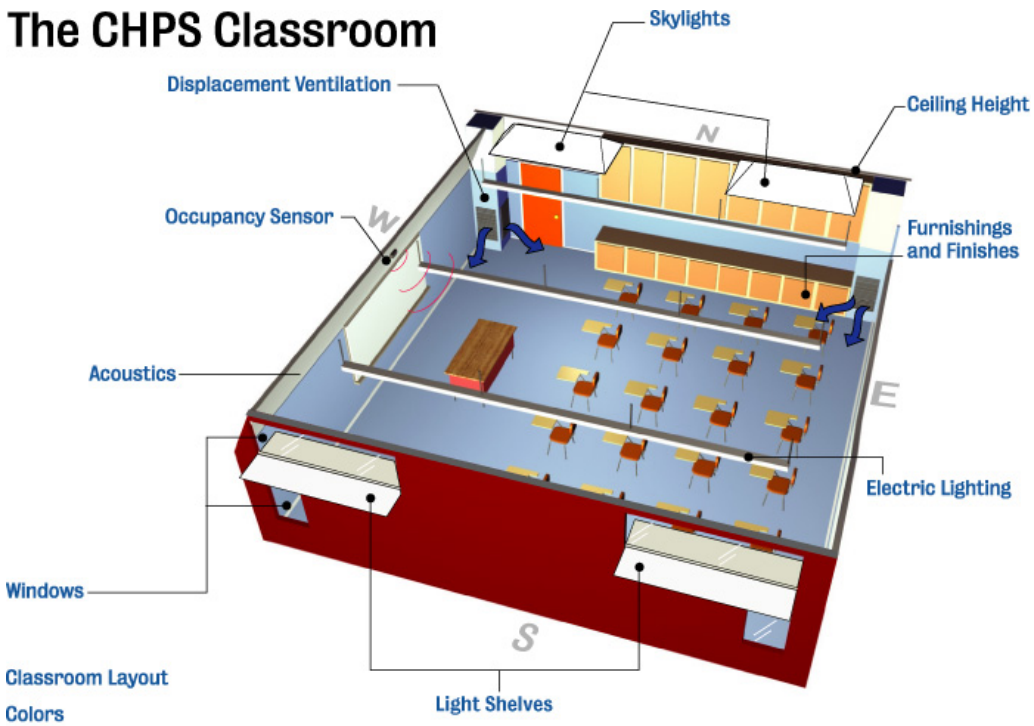
What is the Collaborative for High Performance Schools?

- The mission of CHPS is to improve the quality of education for school children through facilitating the design and construction of learning environments that are resource and energy efficient, healthy, comfortable and improve the indoor and outdoor environment.
- CHPS is a 501(c)3 non-profit organization that provides stakeholders with the tools to build high performance schools.
- What is LEEDs ?
- Is one standard better than the other in terms on building a “green” school?

Chartwell School rendering, Image courtesy of EHDD Architecture

What is
a High Performance School?

- Healthy
- Thermally, visually and acoustically comfortable
- Efficient use of energy, materials and water
- Easy to maintain and operate
- Commissioned
- Environmentally responsive
- A teaching tool
- Safe and secure
- A community resource
- Stimulating architecture



What are the **benefits of high performance building?**

- Heightened student performance
- Reduced operating costs
- Life cycle cost savings
- Better student & teacher health
- Increased Average Daily Attendance
- Improved teacher satisfaction & retention
- Reduced liability exposure
- Reduced indoor & outdoor environmental impact
- Eligible for financial incentives

Why should
we use CHPS in our school district?

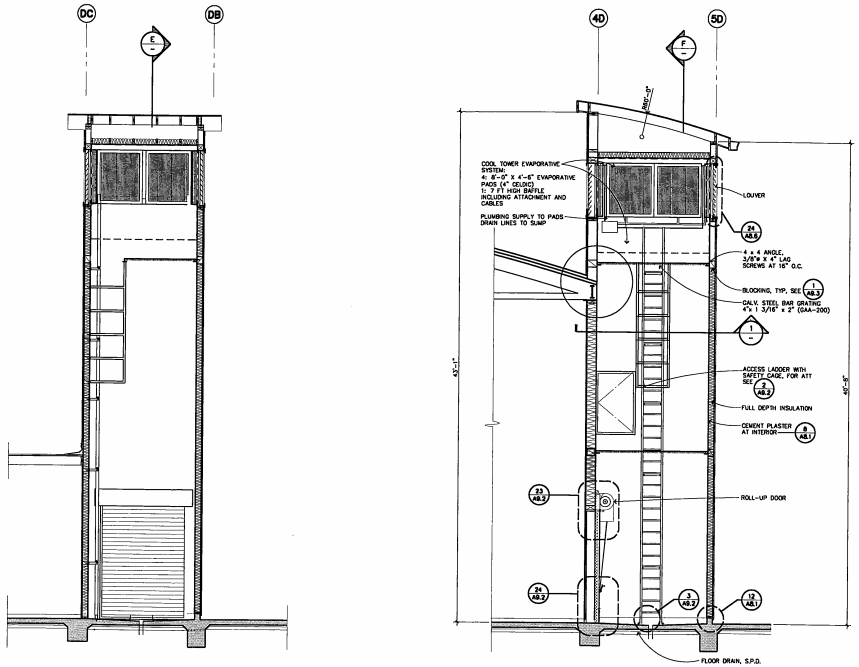
Because CHPS is
VISIONARY

Chartwell School, Image courtesy of EHDD Architecture

CHPS was the first high performance design criteria developed specifically for K-12 schools.

Why should
we use CHPS in our school district?

Because CHPS is THE STANDARD



Cooltower drawing, Image courtesy of Quattrocchi Kwok Architects

$100 million in funds from Proposition 1D will be distributed to schools based on their CHPS score.

Why should
we use CHPS in our school district?

Because CHPS is
RESPECTED

Fifteen California school districts have made CHPS a mandatory design standard for all new schools.

The CA Schools Workgroup and State Architect have officially chosen CHPS as the state-recommended design standard.

CA, NY, WA, MA, RI, VT, NH, ME and CT have adopted the CHPS criteria in their school building practices.

Why should
we use CHPS in our school district?

Because CHPS is NECESSARY

Kenilworth Junior High School, Image courtesy of Quattrocchi Kwok Architects

43% of US schools are reported to have problems with indoor environmental quality. Simultaneously, asthma accounts for an estimated 14 million lost school days in children.***

*Condition of America's Public School Facilities: 1999; ** American Academy of Allergy, Asthma and Immunology, Allergy and Advocate: Fall 2004.

Why should
we use CHPS in our school district?

Because CHPS is **ESTABLISHED**

Maywood Academy High School, Image courtesy of WLC Architects

Twenty schools have met the CHPS Criteria. Over 100 more CHPS school projects are underway.

What kind of **CHPS resources are available to schools?**

CHPS offers substantive guides for each stakeholder in and phase of the process of designing, building and operating high performance schools.

Volume I – Planning A descriptive "how-to" for school districts, superintendents, board members, and others.

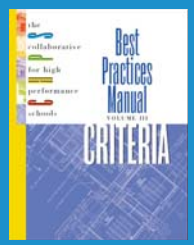
Volume II – Design Technical information for architects, engineers, school planners, contractors and other building professionals.

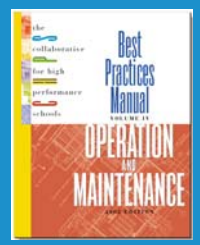
Volume III – Criteria Benchmarks used for measuring whether or not a school qualifies as "high performance".

Volume IV – Maintenance and Operation Guidelines for ensuring that high performance schools operate as their designers intended.

Volume V – Commissioning Information on making certain that technologies and high performance elements are actually built and tested to meet specifications.

Volume VI – Relocatable Classrooms Addresses the performance problems and solutions specific to portable classrooms, and includes design guidelines for building high performance portables. Release date: 12/06





What kind of **CHPS resources are available to schools?**

CHPS offers other resources geared towards each group of stakeholders in high performance school design, construction and maintenance.

- **Events:** CHPS design trainings, school district seminars, maintenance and operation seminars, tours of CHPS demonstration schools, design charrettes, technology charrettes and recognition ceremonies.
- **Technical assistance and criteria interpretations**
- **Low-emitting material database**
- **Implementation tools, including the CHPS scorecard**
- **Directory of high performance design and building services and manufacturers.**
- **Continuous updates on high performance school research and project case studies**

What does a high performance building look like?

Georgina Blach Intermediate School

Los Altos School District, Los Altos, CA
450 students, Grades 7 & 8
5 new buildings, 9 building modernizations
Project design begun 9/97, completed 7/03

High Performance Features:

- Light colored "cool" roof to reduce heat gain and increase roof life.
- Optimizing window glazing, size, location, exterior shades and light shelves to reduce glare and solar gains, and improve daylight distribution and visual comfort.

Images courtesy of Gelfand Partners Architects

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High Performance Features:

- Installing electric lights that reduce output when adequate daylight is available.
- Reduced lighting energy consumption by 50% through appropriate layout and efficient direct/indirect lighting fixtures.

Images courtesy of Gelfand Partners Architects

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Project design begun 9/97, completed 7/03

High Performance Features:

- Natural ventilation
- Intermittent fan control to minimize fan operation.
- Efficient outdoor lighting design

Images courtesy of Gelfand Partners Architects

Does it cost more?

Initial costs are often greater:

A national review of over 30 green schools show that green schools cost 1% - 3% more than conventional schools. Variations in cost depend on degree and choices of building "Green."

However:

These same schools provide financial benefits that are 15 to 20 times as large.

Table A: Financial Benefits of Green Schools ($/ft²)	
Energy	$9
Emissions	$1
Water and Wastewater	$1
Increased Earnings	$49
Asthma Reduction	$3
Cold and Flu Reduction	$5
Teacher Retention	$4
Employment Impact	$2
TOTAL	$74
COST OF GREENING	($3)
NET FINANCIAL BENEFITS	$71

What will we do at MPCSD?

CHPS Criteria Summary:

Categories

- Sustainable Sites
- Water
- Energy
- Materials
- Indoor Environmental Quality
- Policy and Operations

What will we do at MPCSD?

CHPS Criteria Summary:

- Sustainable Sites
  - Site Selection
  - Transportation
  - Stormwater Management
  - Outdoor Lighting
  - Schools as Learning Tools

What will we do at MPCSD?

CHPS Criteria Summary:

- Water
  - Outdoor Systems
  - Indoor Systems

What will we do at MPCSD?

CHPS Criteria Summary:

- Energy
  - Energy Efficiency
  - Alternative Energy Sources
  - Commissioning and Training

What will we do at MPCSD?

CHPS Criteria Summary:

- Materials
  - Recycling
  - Construction Waste Management
  - Building Reuse
  - Sustainable Materials

What will we do at MPCSD?

CHPS Criteria Summary:

- Indoor Environmental Quality
  - Lighting and Daylighting
  - Indoor Air Quality
  - Acoustics
  - Thermal comfort

What will we do at MPCSD?

CHPS Criteria Summary:

- Policy and Operations
  - District Level (Resolution, Education, Assessment, Performance)
  - Project level (Maintenance, Green Power)

How
Is CHPS implemented?

CHPS Points System:

- Each category is assigned points
  - There are prerequisites for each category that must be done in order to earn any points in that category
  - Points are accumulated after the prerequisites are satisfied
  - The points are totaled to determine if the minimum number has been achieved
  - Points are recorded and submitted for verification on a scorecard